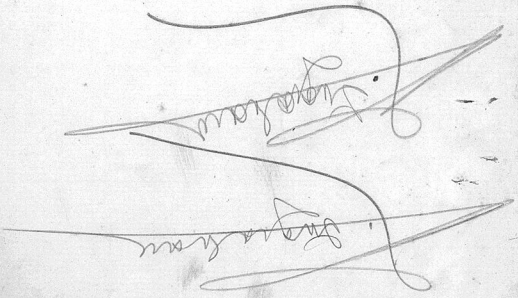
EXPERIMENTAL ~~DATA~~ notes

FROM TO

BEINN BHREAGH LABORATORY
ANNEX

BEINN BHREAGH LABORATORY
ANNEX



1906 Sat. June 9 B.B. Lab.

Cells on hand this date at annex

1700 emty cells
200 cells in hands covering
W+B 1250 cells covered.
1 Pilot Kile of 20 cells.

1906 Saturday June 16 B.B. Lab.

Brought down from lab to annex
1000 cells.
W+B Put away under table
600 cells.
totals cells on hands this date

2300 emty cells
1850 Covered cells

1250
600
1850

1700
200
1900
1000
2900
600
2300

1 Pilot Kile of 20 cells

1906 Monday June 18 B.B. Lab.

4150
500
4650

40
320
80
120
~~128~~ 120
3 | 25600
8533 1/3

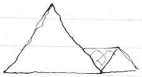
W+B

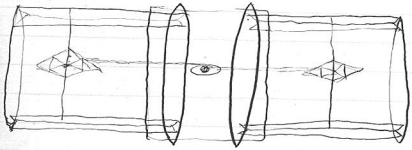
4 | 25600
6400
3000
4 | 11400
1900

4650
1900
6550

1906 Wednesday June 20 B B Lab

W+B





1906 Sept. June 23 B.B. Lab.

Brought down from Lab to annex
1100 Emty cells

Put away under table
300 cells canned

Total cells on hand this date
3100 Emty cells

W.F.B. 2150 canned cells

1850 2300
300 1100
2150 3400
300
3100

also 1 Pilot Rile of 20 cells

sent report of totals to Dr Beck
this date at the Hall.

B , B . L43.

1906 Monday June 25th

Time one man cuts and bevels sticks for 100 cells — Time 1½ hours

do do stamps and completes Tissas for 100 cells — 2¼ hours

do do assembling 100 cells — 10 hours

do do covering 100 " — 24 hours

1906 Tuesday June 26

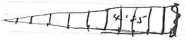
1.50 x 1.50 makes 25 cells.

1.50
1.50
7500
150
2250

a sheet of Japanese Paper
1.50 m x 1.50 m will cover 25 cells of 25 cm each.

14.7
5
2 | 9.7
4.85

10 | 4.85
4.8



1.20

1906 Wednesday June 27th

Received telegram from E B Badger & Sons Boston saying "Impossible to ship floats before two weeks from date"

1906 Thursday June 28

B . B . LAB.

Cells brought down from Lab to annex
400 duty cells

1906 Tuesday July 3

B . B . LAB.

Received today Shipment 7
Standard Beading sizes Nos 1. 2. & 3.

No 1 Beading weighs 4600 gms Per 100 metres
No 2 " " 11250 " " 100 "
No 3 " " 23275 " " 100 "

Average weight Per metre No 1 Beading = 46 gms
" " " " No 2 = 112.5 gms
" " " " No 3 = 232.75 gms

The advantages of this beading over the circular shape are :- first that it will fit inside a tetrahedral cell without bending sticks, second that the groove is just deep enough to allow cell sticks to lay in and

1906 Tuesday July 3 1st

tie closely

third:- that it can be better fastened at intersections

fourth. owing to its shape it is much stronger (cubical contents being equal.)

1901 Wednesday July 4th B. B. 147.

metalic corner cells "data"

300 Empty cells weigh 2987 gms

Average weight of one cell = 9.9 gms.

300)2987(9.956

2700

2870

2700

1700

1500

2000

1800

200

Diff.

3 8/2

2

300 Covered cells weigh 4140 gms

Average weight of one cell. 13.8 gms

300)4140(13.8

300

1140

900

2400

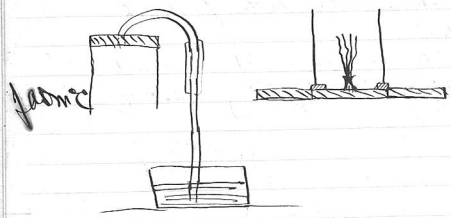
2400

Diff.

3 0/3

0

1906 Thursday July 5



1906 Monday July 9th B.B. Lab.

wood Propellor weighs

1000
1000
500
200
10
2
2712 gms

further woork done on above making total mounting weights 2895

1906 Saturday July 14 B.B. Lab.

1 Piece steel 1 cm X 0.035 cm X weighs 69 gms

1906 Friday July 13 B.B Lab
Put in stock 100 Unity cells

1906 Monday July 23 B.B.Lab.

No 1 Cionco weighs 4170 Grams
wts. ready for flying including head weights 1000 gms

2000
1000
1000
100
50
20
4170

1906 Monday July 23 BBS Lab.

No 2 vionas weighs 4260 grams
including weights at head of 1000 grms
ready for flying

1906 Tuesday July 24 BBS Lab.

	grams	
Weight of motor cylinder, cranks, shafts & cases	21990.	1000 20 10 5 10600
Bells Pulls	1317.	3475
fly wheel	9425.	3060
Wood stand.	8169.	3260 21440
Induction coil & wirings	3940.	350 less for weighing arms
Empty tank & Piping	2500.	21090.

46447

3260
3060
1000
500
200
100
20
10
10
5
2
2
8169

1000
1000
500
200
100
100
50
20
20
10
10
500
200
100
100
20
10
3940

1000
200
100
10
5
2
1317

3260
3475
3060
9795
less for weighing boards 370
9425

1906 Wednesday July 25 B.B.Lab.

On Hand 629 Paper cover cells

1906 Monday July 30 B.B.Lab

100 Jap. Paper covered cells weigh - 1463 gm.

average weight per 1 cell. 14.63

100)1463(14.63
100
463
400
630
600
300
300

1000
200
100
100
50
10
1460
7
1463

1906 Monday Aug 6 — B B Lab

Weight of Paper Disk 5'734.96 Gms.

392
14.83
1176
2352
1568
392
5'734.96

1906 Tuesday Aug 7. B B Lab.

Started motor at 11 o'clock a m and went off finely; turning Propellers 152 revolutions per minute.

1902 Wednesday Aug 8 B.B. Job.

Tide started run in (red wine)	Time	Tide started run out (blue wine)
~~10.~~		~~10.~~
~~12.~~		~~12.~~
11.08		11.27
11.41		11 48
12.00		12.48
1.02		1.09
1.13		1.17
1.33		1.39
1.41		1.48
2.00		2.03
2.13		2.24
2.44		2.58
3.06		3.10
3.13		3.21
3.26		3.39
3.46		

1902 Wednesday Aug 8th Commenced taking time

pm		pm
4.05		4.19
4.35 "		4.47

1906 Thursday Aug 9 1906 B.B.L

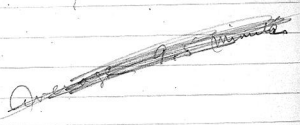
Red mine Tide started Run am	Blue mine Tide started Run out am
8.13	8.23
8.36	8.50
9.08	9.17
9.25	9.34
9.46	9.58
10.12	10 15
10.17	1027
10.39	1052
11.03	11.05
11.14	11.27
11.31	11.58

~~this~~ pm	pm
1.06	1.05
1.17	1.16
1.32	1.19
1.46	1.42
2.05	2.01
2.33	2.31
3.04	2.55
3.35	3.31
3.46	3.39
4 15	4.11
4.45	4.39
	4.50

1906 Thursday Aug 9 B B Lab

10
13
14
18
9
8
11
10
12
14
8
2
10
12
13
11
2
9
13
4
27
11
10
1
2
3
20
4

28) 280 (9.5
252
140
140



1906 Friday Aug. 10th B.B. Lab

Red wire Tide started run in am	Blue wire Tide started run out am
	~~10.33~~
10.37	10.40
10.43	10.58
11.00	11.06
11.19	11.36
11.38	11.41
11.46	12.03 pm
12.13 pm	12.16
12.20	12.40
12.44	12.48
12.51	1.12
1.14	1.16
1 18	1.21
1.28	1.29
1.30	1.31
interrupted	here
1.55	2.00
2.04	2.22
2.25	2.27
2.30	2.53
2.56	3.18
3.38	3.45
3.48	3.53
3.57	4.02
4.05	4.09
4.13	4.18
4.21	4.25
4.31	4.33

Continued next page

1906 Friday Aug 10 R.B. Sab.

		3rd Pulley	2nd Pulley	1st Pulley
Motor speed	per minute	900 rev	900	900
Propeller A	"	190 "	240	290
" B	"	190 .	240	290

1906 Sunday Aug 10th R.B. Sab

Red mine	Blue mine
Tide started run in	Tide started run out
4.35 pm	4.38 pm
4.51	4.54
4.58	

Saturday Aug 11th 1906 R.B. Sab

Red mine	Blue mine
Tide started to run in	Tide started to run in
8.19 am	8.26 am
8.30	8.34
8.45	8.56
9.10	9.21
9.36	9.38
9.42	9.50
9.55	10.12
10.25	10.40
10.55	11.06
11.10	11.13
11.17	11.20
11.29	11.41
11.54	12.08
12.22	12.39
12.55	1.09
1.24	1.39

Continued 2nd Page

Saturday aug 11th 1906 B.B. Lab

Red mine Tide started to rise	Blue mine Tide started to run out
1.52	2.13
2.26	2.37
2.48	2.52
2.57	3.09
3.18	3.31
3.39	3.51
4.08	4.21

Monday aug 13th 1906 B.B. Lab

Red mine Tide started to run in	Blue mine Tide started to run out
8.14 am	8.18 am
8.33	8.37
8.40	8.55
9.04	9.13
9.27	9.30
9.36	9.41
9.45	9.48
9.56	10.09
10.19	10.29
10.33	10.36
10.40	10.47
10.55	10.58
11.05	11.08
11.11	11.24
11.39	11.55
11.58	12.00
12.12 pm	12.20 pm
12.22 "	12.35 "
12.45 "	12.58 "
1.00 "	1.04 "

Continued next Page

Monday Aug 13th/06 B.B.L

Reed Wire in	Blue Wire out
1.12 pm	1.15 pm
1.18	1.40
1.51	2.04
2.21	2.41
2.46	2.50
2.55	3.12
3.15	3.18
3.30	3.50
3.54	4.07
4.10	4.48
4.51	4.55

Tuesday 14th/06 B.B. Lake

Red wire in	Blue wire out
8.09 am	8.20 am
8.32	8.53
9.07	9.29
9.42	10.00
10.03	10.15
10.15	10.30
10.41	10.56
11.00	11.03
11.16	11.28
11.35	11.42
11.53	12.09
12.12	12.28
12.33	1.27
1.33	1.52
2.01	2.07
2.10	2.15

Continued next Page

B.B Lab

Sunday 14th 1906

Red line

1:15 pm
2:40
3:10
3:17
3:44
4:14
4:21
4:46

Blue line

2:26 pm
3:01
3:11
3:29
4:02
4:19
4:34

The Loop 29th/06 B.B. Lab

Red line

8:10 am
8:21
8:34
8:38
8:58
9:07
9:16
9:27
9:46
10:07
10:15
10:20
10:29
10:45

Blue line

8:17 am
8:24
8:36
8:54
9:02
9:14
9:21
9:31
9:58
10:10
10:16
10:27
10-39
10:47

1906 Saturday aug 18 B H Lab

1 m² floor weighs 10102 gms
what does 11.4400 m² weighs

$\pi r^2 = \frac{22}{7}$ 1 = 3.1416

50

157080 0

Estimated weight of Shaft for propeller 157.08 cm³

8

1256.64 gms

7 × 4 × 2 = 56 cm³

8

Shaft bearings **448 gms.** 21040

100 × 7.2 × 6.4 = Estimated weight of stick of spruce

7.2
6.4
288
432
46.08 × 100 = 4608 ÷ .5
2304 gms

4525
12
15,500

62.5

7.2
6.4
288
432
2 | 46.08
2304.

277.2 cm³

πr^2

$\frac{22}{7} \times 49 \times 12$

154
12
1848

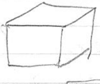
154
62.5
770
308
924
9625.0

cm³

1200 x 1200 x 1200 = 1,728,000,000

1.7.28 litres

144
12
------
17 2.8



12 x 12 x 12 = 1728 cm³
1728 gms
1.728 Kg.
1.728 liters

liter 1000 cm³
weighs 1 Kg.

Estimated weight of a piece of lead.

25.5 x 3.5 x 4 = 333 (cm)³. S.G. = 11.5

25.5
3.5
127 5
76 5
89.25 4
357.00

= 333
11.5
1665
333
333
3829.5 gm

1950

1950

2120 5

1000

357
11.5
278.5
357
357
4205.5

350
350
385
3

3829
1950
9

1950
1000
200
100
10

3260

Estimated weight of oil stone

20.5 x 5 x 3 = 307.5 cm³

weight of water = 307.5 gms
" " stone = 684 gms

15
102 5
205
307.5

307.5 / 684 < 1/2C. : 2.2C = 684 / 307.5 =

500
100
50
20
10
2
2
684 gms

~~20.4 × 5 ×~~

20.4 × 4.9 × 2.9 = 289.884 cm³

290 cm³

20.4
4.9
1836
816
99.96
2.9
8964
1992
289.884

290 | 684
580
104
87
17

684

∠2 : 3.

2 X 5 9 8 ok

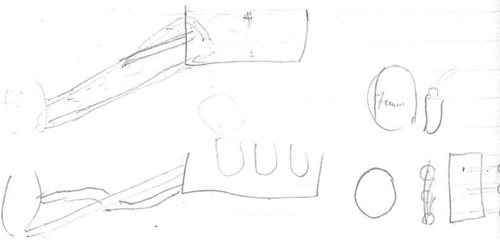
Reg. Physics 5.7.26

16.9 × 3.1 × 1.3 = 68.10 cm³

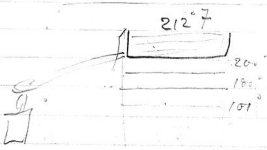
16.9
3.1
169
507
52.39
1.3
15717
5239
68.107

68.1
7.5
3405
4767
510.75 grms

68.1
7.483
68.1
7483
59862
44898
509.5903



1906 Aug 16 —— Fort —— at Boat House



1906 Aug 20 Monday — at Boat House

Bolt 62 cm long 7/16" dia weighs 4 2¾ gms
" Holding Clip end of Brace 1 15 "
" " Bottom end do 1 25 "

1906 Aug 21 Tuesday — at Boat House

Trial of speed of Ugly Duckling (fort & starboard propellers)
Rotation of motor per Command 550 (per min 1100)
Rotation of propeller per Minute 154 (per min 308) 145 against wind (290 per min aggd)
Time Taken between Trees A & B
With wind 139 seconds
Against wind (Got nearly up to Tree A in 230 seconds but then wind brought her to a stand still)
Witnesses on board the Ugly Duckling Prof. E.A. Forbes, Mr. Bedwin, Mr. Ingraham & Asfield.
Witnesses on board small boat Angus McInnis & Mr. & Mr. Fred McInnis. In another boat Wilson Huddlestone & Robt. Bethune
Witnesses on shore Shaw Cody & gentlemen names unknown. (Mr. Stinson & Mr. Caldwell).

Exp 2 B to C 133 Sec. with the wind
C to B 186 against wind under sail
On Board. Mr. Fred McInnis, Prof. Forbes, Mr. Ingraham. Mr. Bedwin and A.G.B. (Mr. McInnis steered)

Rep. Spooner 179 lbs
Mr. McInnis 135
Mr. Ingraham 145
Mr. Baldwin 145
Self 235

839 lbs passengers
1000 lbs plumb
1839 plumb + passengers

1840
920
0

Superstructure + motor 100.000 Kg.
920.00 Kg.
1020.00 Kg.

August Wednesday Aug 22 arrived Kennebunk

weight of centre frame put in today
6505 gms

Distance from Station A to
Station B 1500 cm

Exp. 1 Speed A to B = 172 seconds against wind.
B to A in 132 seconds with wind.

2 | 304
152 seconds

Rep. 179
Mr. 135
Baldwin 145
Self 235
704 lbs

Speed 150 meters in 152 seconds
3.6 Km. per hour. Prof Spooner, Mr Baldwin Mr Ingraham + Self

3.600

Exp. 2. A to B 167 seconds against wind.
B to A 138 seconds with wind.

2 | 305
152.5

Speed 150 meters in 152.5 seconds

Exp. 1 152.0
Exp. 2 152.5
Summation 304.5
Mean 152.25

1908 Aug 22 — West — on board Ugly Duckling

159 : 1000 :: 152,25 :
3 20 20
3|3045,00
1015 seconds

Speed 1 Kilometer in 1015 seconds

1015 : 3600 :: 1 : x

Motor attached to second gearing.

1015|3600|3.5
203
720
609
1110
1015
95

Speed 3.54 metres per hour.

Result of Exps 1 & 2.

Motor 1100 revs per min.

Yesterday propeller made 308 revs per min with boat 290 against wind.

Exp. 3. Motor attached to second gearing.

A to B 153 seconds against wind
B to A 123 seconds with wind

153
123
2|276
138 seconds

Propeller made 171 revs in 1/2 minute 342 revs per minute.

159 : 1000 :: 138 : x
3 20 20
3|27600
920

1 Kilometer in 920 seconds

920 : 3600 :: 1 : x
92|360|3.9
276
840
828
12

3.9 Kilometers per hour.

Exp. 4 Motor attached to second gearing as before.

A to B 157 seconds against wind
B to A 120 seconds with wind

157
120
2|277
138.5

Motor makes 590 revs in 1/2 min or 1180 revs per min

Motor made 1180 revs per minute
Propeller made 342 revs per minute

Prop. Speed. Eg. 3:1 want 150 revs in 138 seconds
want 150 revs in 138.5 seconds
300 seconds 2|276.5

150 : 1000 :: 138.25 : x
3 20 20
3|2765,00
921.67 seconds

1500 in 138.25 seconds

Speed 1 Kilometer in 921.67 seconds

921.67 : 3600 :: 1 : x

Speed 3.9 Kilometers per hour.

92167|360000|3.9
276501
834990
829503
5487

1906 Aug 22 — Wed — on Ugly Trucking

Exp. 5 Motor attached by 3rd gearing

A & B 189 seconds against wind

B & A 137 seconds with wind

Summation 326

Average 163 seconds

Propeller makes 131 rotations in 1/2 minute or 262 rotations per minute

---

Exp. 6 Motor attached by 3rd gearing

A & B 225 seconds against wind

B & A 146 seconds with wind

Summation 371

Average 185.5

Motor makes 530 rotations in 1/2 minute or 1060 rotations per minute

Exp. 5 163

Exp. 6 185.5

2 | 348.5

174.25

1906 Aug 22 — Wed — at BB. Hall

Results of Experiments with Ugly Trucking Aug 22 1906.

Weight moved about 1000 kilograms. Propellers 2 meters in diameter — angle of tips 22½°.

Experiments	Gearing	Rotations per minute: Motor	Rotations per minute: Propeller	Time taken to advance 150 meters in seconds	Velocity in Kilometers per hour
~~Exps 1 & 2~~					
Exps 1 & 2	First gearing	1100	308	152.25	3.547
Exps 3 & 4	2d gearing	1180	342	138.25	3.906
Exps 5 & 6	3d gearing	1060	262	174.25	3.099

N.B. Motor was not acting satisfactorily in Exps 5 & 6 as number of rotations of motor less than in Exps 1, 2, 3, & 4. Think Exps 5 & 6 should be repeated. Why not whole series.

11

1916 Aug. 23 Thursday Dr. Board right shoulder

dia of Pully on motor shaft	8 cm
" " 1st gearing	22 cm
" " 2nd "	30 cm
" " 3rd "	38 cm

Load

Dr. Bell, Mr. Bedwell, Mr Ingram, Mr. Cox
235 145 145 171 total 696

Experiments with Skeleton Propellers

Motor attached to thrice gearing.

Considerable breeze. Posts A B 100 m. B C. 150 m.

Experiment 1. A to B 180 seconds against wind
B to A 73 seconds with wind

Propeller makes 264 rotations per minute 132 ½ min

Experiment 2. A to B 241 seconds against wind
B to A 74 seconds with wind

Propeller makes 264 rotations per minute.

Dragging rain wind increasing

Experiment 3. second bearing
A to B 160 seconds against wind
B to A 71 seconds with wind

Propeller makes 242 rotations per minute

1906 Aug 24 Friday at B.B. Lab

Put in stock 1650 Cinty cells 33 50
1650

Total cells on Hand this date
1650
100
400
3100
2150
7400 cells

---

1 rotating glider 25 X 100 cm
1 " " 50 X 100 "
1 " " 25 X 50 "
1 " " 12.5 + 100 "

1906 Aug 24 — Friday — on Ugly Duckling

Ugly Duckling with Skeleton propellers 2 meters in diameter 1st gearing.

A to B 100 m B to C 150 m

Wind about north very light.

Whole course sheltered

Surf. 1 A to B 92 seconds 252 revolutions per 2 Min
B to A 85 " 256 revolutions per 2 Min

Try whole course A to C (250 m)

Surf. 2. A to B 84 seconds Propeller 140 revolutions per 1/2 min 280 revolutions per min
A to C 219
C to B 128
C to A 215 " 140 revolutions per 1/2 min 280 revolutions per min

A to B 84 B to C 135
B to A 87 C to B 128

A to C = 250 m in 219 seconds
C to A = 280 " " 215 seconds
500 m " 434 seconds

434 : 3600 :: 500 : x

434 | 1800000 | 4147 Average speed 4.147 Km. per hr.
1736
640
434
2060
1736
3240
3038
202

2 0 / 4 7 in Surf. 2.

OK

1906 Aug 25 Saturday at Royal Hotel

Put in tank today 4150 gms gasoline.

1906 Aug 25 — Saturday — on Ugly Duckling

Load

Dr. Bell, Mr. Bedwin, Mr. Ingraham Mr. Cox

235 145 145 171 total 696

A B C

400 m. 322.5 sec.

322.5 : 3600 :: 400 : x = 4.465 Km per hour.

3225) 1440000 (

645 2880000

129 576000

43) 192000 (4465

172

200

172

280

258

220

215

.5

7/3/1/5 ok

$(a+b)^2$ +

a + b

$a^2+2ab+b^2$

(a+b)

$(a+b)^2$ (2)

a + b

a + b

$a^2 + ab$

$+ ab + b^2$

$a^2 + 2ab + b^2$

$a^2 + 2ab + b^2$

$a^4 + 2a^3b + a^2b^2$

$+ 2a^3b + 4a^2b^2 + 2ab^3$

$+ a^2b^2 + 2ab^3 + b^4$

$a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4$

$\frac{a}{b} = \frac{c}{d}$ 1,4 2,3

$\frac{ab}{b} = \frac{ac}{ad}$

$\frac{b}{b} = \frac{c}{ad}$ $\frac{b}{b} = \frac{ac}{d}$

322.5) 9 (

36

322.5) 1440 (

$\frac{a}{b}$ $\frac{c}{x}$

3225) 1440.00 (

---

60 60 3600

36 16 21.6 36 576

3225) 90 (

200 m. 161 seconds slack belt

200 m. 161.5 second tighten belt

1347.5 : 3600 :: 1600 : x

13475) 5760000 (4274 5+

53900

37000

26950

100500

94325

61750

53900

7850

1347.5 x = 5760000

13475 x = 57600000

x = 4.275 Km per hour

2/0/8/2

190

222

412

Engine 1 Km in 812 seconds

Rowboat 1 Km in 1106.

1906 Aug 28 Tuesday

	Revs. per minute 1st gear	Revs. per minute 2nd gear	Revs. per minute 3rd gear
Motor makes	1280	1230	1280
Propeller "	250 "	274	330

on Boat Thursday

256

270)1200(4.444
1080
1200
1080
120

330)2100(3.87
1980
2900
2640
260
231
29

4.4)1280(290
88
400
396
4

1906 May 28 Thursday on ugly Duckling

on board ugly duckling

Prof Isroweed	Mr Baldwin	Mr Bedwin
179	175	145

Mr Ingraham
145

Total 644 lbs

A to B 124
B 73
2|197
98.5 secs.

135
145
280 n.p.m

(1)

98·5) 360000 (3655
2955
6450
5910
5400
4925
4750
4925

3·655 Kilometers per hr

---

(2)

91
77
2|168
84

84) 360000 (4285.7
336
240
168
720
672
480
420
600

152
150
302 n.p.

4·286 Kilometers per hr.

---

(3)

85
80
2|168
84

= 4·286 Kilometers per hr.

140
150
290 n.p.m

---

(4)

84 mean time.

4·286 Kilometers per hr.

157
145
302 n.p.

1906 Aug. 28th Tuesday on "Ugly Duckling"

(5)

82
81
2|163
81.5

157
120
297 a.p.m

815) 3600000 (4417
3260
3400
3260
1400
815
5850
5705

4.417 Kilometers per hr.

(6)

80
87
2|167
83.5

140
144
284 a.p.m.

835) 36000000 (4310
3340
2600
2505
950
835
150

meter 4|1440
360 a.p.m

4.310 Kilograms per hr.

(7)

83
73
2|176
88

88) 36.0000 (4090.9
352
800
792
80

4091 Kilometers per hr.

1906 Aug 29 Wednesday on Boat House

2nd year Motor 940
Propeller 284

1906 Aug. 30th Thursday
30.2 c.m. Pulley no. 2 (propeller shaft)
8 " Motor Pulley

80) 302 (3.77
240
620
560
600
560
40

or 5/8 × 8/4

Actual speeds of motor & Propellor
motor 940 Prop. 284 per minute

284) 940 (3.30
852
880
852
280

or 4/6 × 5/1

Slip of belt amounts to 3.77 − 3.30 = .47

377) 940 (2.49
754
1860
1508
3520
3393
127

or 4/6 × 8/1

1906 Aug 31. Friday. at Boat House

Weight of Boat Box	2785 gms
finish on Platform	2315
2 Propeller Shafts at 745 each	2930
6 Collars	514
2 Skeleton Propellors 22½° at 1440	5680
4 Bearings & Bolts at 467	1868
4 Running Blocks at 187	1148
2 beams under engine floor at 1155	2310
Paint	4650

1906 Sept 3 Monday at Boat House

motor 1050 Propeller 270 engine mts 3.77 to 1

3.77) 10.5000 (2.78

754

2960

2639

3210

3008

202

Slip of Belt ants to .8

1906 Sept 5 Wednesday Overcast

Skeleton propellers 2m diam. 30° at tip — new belt — oar-steering — on third gearing

Third gearing

AB	100 m in 75 sec.	130 strokes	wind S slight	(stream 2 kts)
BA	100 m in 95 sec.	122		

Circum. of 3rd Gearing propeller pulley - 120.5 cms.
" 2nd " " " - 98 "
" 1st " " " - 69.5 "

Ratios of Gearing.
1st — 1 : 2.64
2nd — 1 : 3.65
3rd — 1 : 4.58

J.W.S.

200 in 170

17 : 3600 :: 20 : x

17 | 72000 | 4,235
68
40
34
60
51
90
85
5

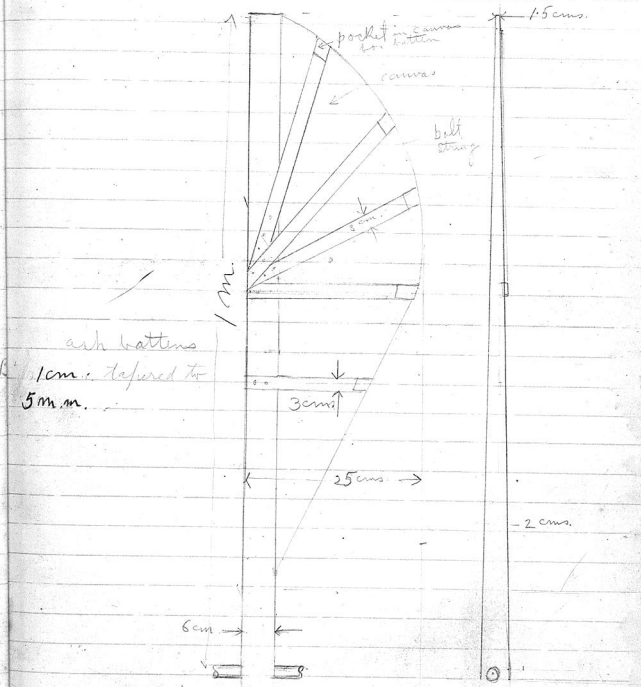
6 0 5
5

1906 Sept. 7th Friday Boat House

Bat wing propeller

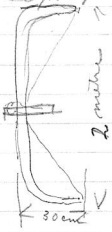
5

F.W.B.



Scale 20 cms. = 1 m.

1906 Sept 7 Friday Cor. Office



try 30° propellor Solid on slow gear in morning
and 22½ do do in afternoon

1906 Sept 8 Sat on ugly Buckling

5 2
1 4 0
1 9 2
9 6

1906 Oct. 24th Wednesday
Put in tank on Ugly Buckling 16 1/2 gal of Gasoline.

1906 Nov 10 Sat 11 A.M. Lab

Weight of Bedonna Baldwin
Complete with motor & Propellor 4 22 lbs

1906 Nov 19 Monday B.B. Lab.

Tried Boat model made of two interlocked Propellors 2 m long 22½° angle Boat lifted itself out of water to a point about 30 cm from stern on being towed by a string in hands of W.F.B. in heil running along bank of inlet at ware house

Witnesses W.F. Bedwin Capt. B.B. Lab.
J. ed. edge. erwell
J.W. Baldwin

1906 Nov 20 Tuesday B.B. Lab.

Tried Boat made of two interlocked Propellors 2 m long 22½° Angle in Lab. Pond, After Mr Bells Departure Boat lifted out of water - same as noted in 19th notes - for the first 10 metres and then settled down in water and would not come up again.

I put weight in several diff. places (1000 grams) and the time it was right up in the bow bringing the centre of gravity 2¾ cm forward of centre of surface it seemed to do best. though it did not rise any higher it kept its height longer and acted more steadily in water after it settled which it did after a little while

W.F. Bedwin Capt. B.B. Lab.

1906 Dec 1. Saturday B.B.Lab

Tried (Boat) Model No 3 out on Bay. Seemed to tow much easier than No 1 or No 2 (according to the mans report that was running with string)

Boat showed a tendency to rise and stay up on surface though there was too much sea running to form a good opinion of what it would do in a calm

Watts

had no weight in her at all

centre of gravity is 36 cm forward of centre of surface

Lab Pond is frozen over

1906 Dec 5 Wednesday B.B.Lab

Letter

I had an Idea that the method with which we now figure

Putting cells together by machine was not

1000 as strong as the hand work; so I took

500 a cell from stock of hand made cells

200 and one from machine made cells

100 and made a test for comparison

50 in tension of the cross sticks of each

10 cell with the following results

2915 gms

5715 gms

Watts

In Hand made cell stood a weight of 5715 gms

And did not give way at all

In machine make cell the stick pulled

out of the cell with a weight of 2915 gms

The cells were picked at random from stock and

each loaded good

1906 Dec 5 Wednesday 13½ Feb

Continued

The way I made the exp: was to suspend cells from Bar resting on two benches by wire through hole in metal corner and hang weight to other end by wire passed through that corner. under these conditions I consider it safer to make our cells for exp work by hand till such time as we get machine to do strenuous work

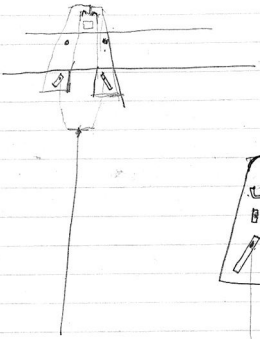
1906 Dec 15 Sat. 13½ Feb

I made a frame today with Mahi's model it similar to an Ice boat, and rigged up on same the small air cooled motor (2½ H.P.) with a 1 pr Bodil Screw 12.5" cm across tips 22½° at tip, attached direct to motor shaft. took it out on harbor Ice and started motor and the thing started away nicely. I went up and down the harbor a few times with it. Motor turning over 1200 rev per min made the 100 m run in 21 Sec actual timing which is at the rate of 17.142 ½ m per hour

Ice was pretty rough and our gear very crude.

think this time can be cut in two or even better with smooth Ice and good gear. think there should be a possibility of trying Arcae Steering with Something like this.

1902 Dec 25 Wednesday 13½ Lab.



1907 Feb 11 Monday B.B. Lab

Total cells (winged) in store at Brick House today 6250 cells.

1907 Feb 23 Sat B.B. Lab

Put in Brick House 400 winged cells

total cells winged . . . . . .

in store → 6250
6650

1907 Mar 9. Sat B.B.Lab.

time Putting up 2250 cells — 8 days

5/9
45
10
2250

time making tins for 2250 cells. — 7 "

time cutting sticks 2250 cells 4 7/8 days

Tins 213 cells to the Pound - after cut. -
1 bar @ 50c covers 25 cells
1 yd zinc @ 45c 52½c 57½c
covers 6 cells
1 lb steel @ 30c Pound makes tins
for 213 cells
sticks for cells cost 40c Per first lot 25c more
Per 100 feet -

1907 Mar 9 Sat BB Lab

Put in Kili House 550 cells winged

6450
550
7200 Total winged cells in stock 7200

1907 Mar 23 Sat BB Lab

Put in Kili House 500 winged cells

Total winged cells in stock 7700

Total Cinty cells in stock 6450

Total 14150

1907 May 20 Monday BB Lab

Put in Kili House 500 winged cells

7700
Total winged cells in stock 8200

Total Cinty cells in stock 5950

1907 July 2 Wednesday BB Lab

Put in Kili House 2250 winged cells

8200
Total winged cells 10450

Total Cinty cells 3700

1907 July 13 Sat. [illegible]

Weight of Paper Kite. Boards 15 lbs
" 2 floats 7½ lbs each = 15
Total 30 lbs
weighed with spring Balance

1907 July 25th Thursday B.B. Lab

Put in Kite House 3350 winged cells

1730
1600
3350

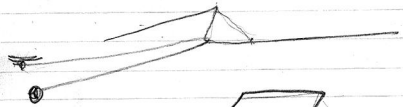
Total winged cells in stock 13800

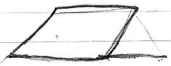
Weight of ?

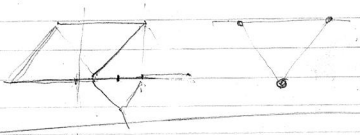
Frame	242 lbs
Steering apparatus	15 "
1 large float	36
2 small " at 15	30
Iron	7
Total	330 lbs

at Boat House

1907 Aug 6 Tuesday B/B Lab.







1907 Aug 7 Wednesday B/B Lab

Make 3 Solid Screws 1.5" - 15° Push Mode

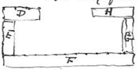
" 3 " " " " Pull "

duplicate above in skeleton

1907 Aug 8 Thursday Boat House

Siamese Model

System of floats



		wt
D	75×25	350 gm
E	100×25	478 g
F	300×25	818 gm
G	100×25	468
H	75×25	347 gm

1	9	9
2	8	16
3	7	21
4	6	24
5	5	25
6	4	24
		119

A 119 cells
B 119 cells
C 26 cells
264 cells

1	3	3
2	4	8
3	5	15
		26

Surface of floats 650×25 = 16250 cm² = 1.6250 m²

Re-weighing

F	G	H	D	E
1000	200	200	200	200
200	100	100	100	100
100	100	20	50	100
10	50	10		50
	10	10		20
	5	5		5
				2
1310	465	345	350	477

Weights of floats

D — 350
E — 477
F — 1310
G — 465
H — 345
2947 gms.

Flying weight of floats.

Surface (horizontal) 1.6250 m²
Weight 2947 gms.
Flying weight. 1813.5 gms per m² horizontal

The whole Kite is composed of 264 cells
Horizontal or supporting surface of cells = 264/32 square meters = 8.25 m²

Total supporting surface { cells 8.250 m², Floats 1.625 } 9.875 (nearly 10 m²)

Weight of Kite (floats & all) - 8952 gms.
Horizontal surface, say) 10 m²
Flying weight, say) 895.2 gms per m² horizontal

8/66 2/16.5 8.25

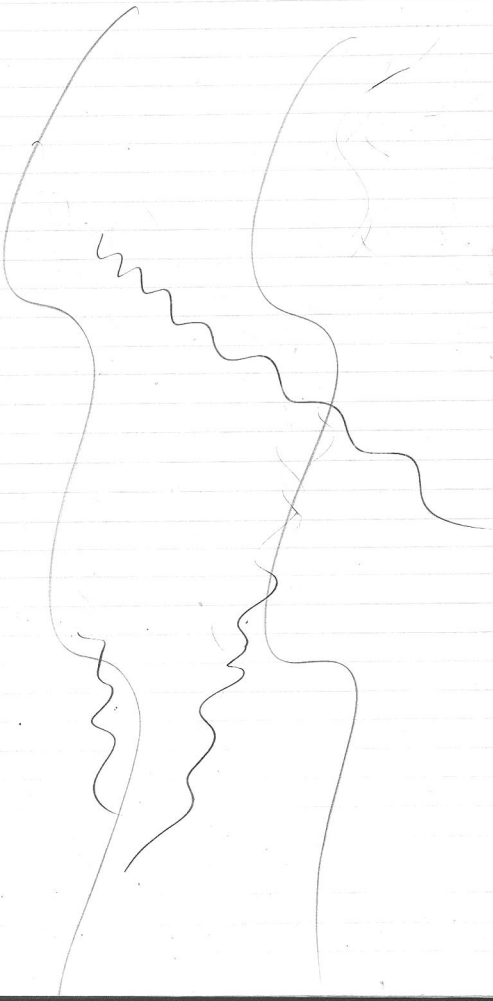
32)264 (8.25

1.625 : 1 :: 2947 : x
1625)2947000(
325)589400
65 117880
13)23576 (1813.5

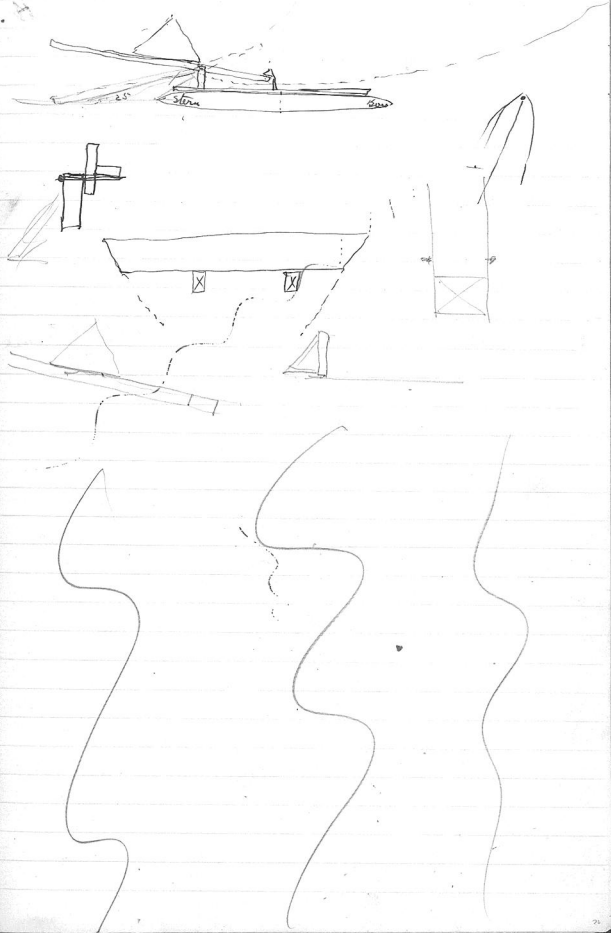
19.5 × 454 = 7800 / 975 / 780 / 8853.0 gms

Weight of Siamese model.
200
2000
10
5
2
3475
3260
8952

Whole Kite floats & all 8952
Floats 2947
Kite without floats 6005

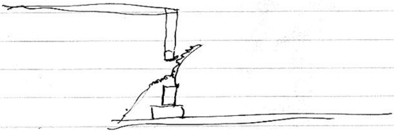


1907 Aug 10 Sat at Boat House

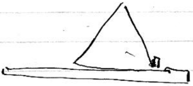


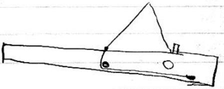
1907 Aug 12 Monday at Boat House

1907 Aug 13 — Tuesday — at B.H.



1907 Aug 14 — Wed — at Boat House





426
183
188
424
1221 gms

Weight of floats carried by Siamese twins today

notes

floats on flying line x
mast ~~for~~ pilot kite on guideline x
cleats to hold kite ugly shackling x
mark 25 m spaces on towing rope & flying line x
weigh flying line wet 3770 dry 2650 x
serve end of flying line x

1907 Aug 15 Thursday at Boat House

Flying Line (Thread rope weights
wet 3770 gms
dry 2650 gms
Length 78.75 m.

This line was used to fly Siamese Twins from Baddeck Aug 14 1907

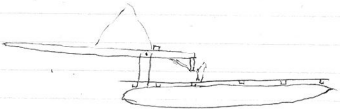
1907 Aug 16 Friday at Boat House

Ever since becoming interested in the problem of aerial navigation by being taken into the employ of Dr A Graham Bell as Supt of his B.B. Lab. I have thought that there would be much difficulty in towing a machine out of the water - or even to get a machine propelled by its own power to rise from the water - from the fact - as is well known - that the greater one propells any known kind of boat through the water the more it tends to depress and hold onto the water at the stern our first Exp this year in attempting to get a kite to rise from the water - by towing it against the wind with a motor boat - developed another difficulty viz. the utter impossibility of keeping the structure directly behind the tow boat till it got out of the water - which was, I thought because the machine necessarily had so much - what might be called sail area - and so little hold on the water: and being very light, the wind would blow it around in all directions before it had a chance to get

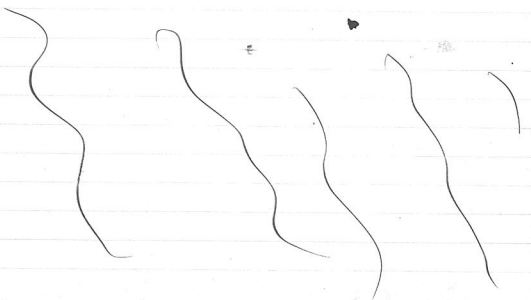
into the air.
now the Idea struck me that if we could ~~get~~ devise some means of geting a machine started from off the deck of motor boat that we would overcome a great difficulty and save ~~a~~ a ~~[illegible]~~ great deal of valuable time, which would otherwise be taken up in experimenting with floats adapted to rise out of the water. ~~&c~~ &c. so, if the Idea of starting from a boat was peasable the question of floats would be reduced to a mere nothing. I suggested the Idea to Dr. Bell and he imedately thought well of it ~~[illegible]~~ but said that we should be able to control machine as a kite. for first exp; which meant that there would have to be another boat going out ahead with flying line.
in talking the matter over further it was ~~[illegible]~~ suggested that we might take ~~the~~ a kite on a small boat in tow of the motor boat. this Idea brought out another, which was that we fit up an arangement on the deck of the "Ugly Duckling" see photo # 302 + 303 on which we could rest the ~~kite~~ machine while towing to proper position, and then by pulling a trigger elevate the front surfaces to a flying angle.
this plan we adopted and it has proven very satisfactory
The mechanism is very simple and consists of two bars about 4 m. long hinged to 2 posts on deck at a ~~point~~ about 1/4 distance from forward end of ~~[illegible]~~ Bars. the balance of bar projecting over

1907 Aug 16 Friday at Boat House

The stern of Ugly Duckling per Photo # 3027-303
the Bars are connected together at forward end only, leaving clear space between them all the distance back to the ends.
the machine is placed on this frame and secured properly and towed out to the proper place and at the right time the trigger can be pulled and frame will rock back elevating front surfaces of machine and machine rises into the air on the flying line as a kite
we have already tried the apparatus in launching a large kite and it works perfectly well.

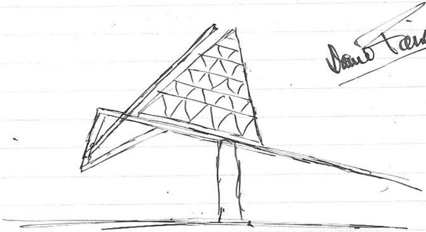


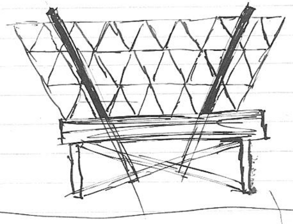
W H Bedwin Sergt.
Aug 16/07 B B Lab

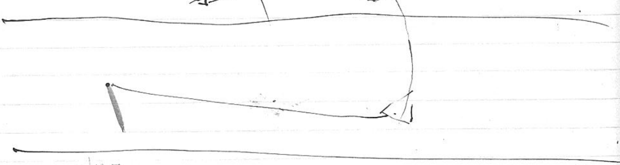


1907 Aug 17 Sat — at Boat House

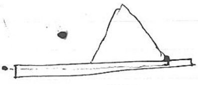
David Fairchild.







2 | 10.7
5



25
10.7
14.3

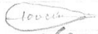
15

18 X 70 X 5
70
1260
5
6300 cm²

3220
3260
6480
2000
8480

7 floats weigh 211 gms

100 cm



100 cm float supports 8682 gms without going under water.

1520
1318 [illegible]
75 [illegible]
1243
1250
75
1325

8480
202
8682
1318
10,000

8682
1325
10,007

Kite without floats say 6000
4 floats at 211 say 844
Total 6844 gr
say 7000 gms.
4 | 7000
1750

(4 4A ½)

477
517
429
560
525
530

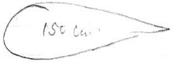
810
840

429
477
517
525

$4\overline{)1948}$
487

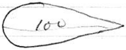
Say 500 gms.

2500 cm²
800



Weight 500 gms
(Horiz) Surface 2500 cm²
Flying weight 2000 gms per m²

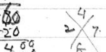
2500 : 10000 :: 500 : x
2000 gms
800



Weight 211 gms
Surface 1260 cm²
Ratio 1674 gms per m²

18 × 70
1260 cm²

1260 : 10000 :: 211
126) 211000
63) 105500
21) 35167
7) 11722
1674



Weight 121
Surface 650
Ratio 1861 gms per m²

13 × 50
650

650 : 10000 :: 121
65) 121000 (1861
65
560
520
400
390
100
65
35

Silk | 200 × 52 48 gms per m² | weight 50 gms

Cotton | 100 × 100 168 gms per m² | weight 168 gms

100
50
10
5
2
1
168

52
200
10400

10400 : 10000 :: 50
104) 5000 (48
416
840
832
8

48 : 168 :: 1 :
48) 168
12) 42
6) 21
3.5

1907 Aug. 22 Thursday Bt. house

Weight of Selfridge - 10,000 gms
no of cells 320
taking 32 cells to the m² horizontal

flying weight = 1010 gms per m²

Oblique surface

541.25
320
108 25 00
162375
173200.00 cms²

~~173.200) 10000 (519.05~~
~~9660~~
~~3400~~
~~1732~~
~~16680~~
~~15588~~
109200
9660
260

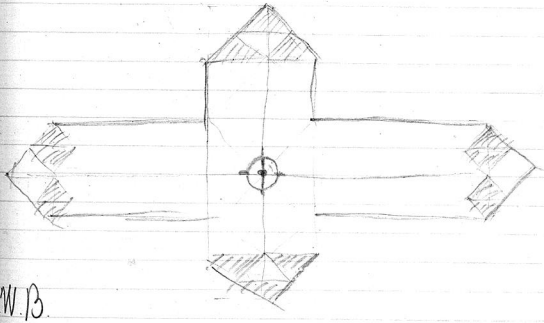
1732) 10000 (577.36
8660
13400
12124
12760
12124
6360
5196
11640
10392
1248

flying weight - 577.36 gms
per m² oblique

1907 Aug. 22 Thursday Bl. house

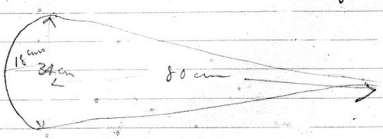
Gliding machine using collapsible cells to control stability automatically both in transverse as well as fore & aft direction.

Any kite structure of tetrahedral cells made in form of a cross of some sort could easily have a bank or section of the cells at its extremities made collapsible. Then a weight swung on gimbals below the C of G could control the angle of the collapsible wings.



G.W.B.

1907 Aug. 22 Thursday Bt. Mona



½ area of ⊙ $\frac{22}{7} \times 18 \times 9 = \frac{162 \times 22}{7}$

$= 509.1 \text{ cms}^2$

162
22
324
324
7 | 3564
509.1

area of Δ $34 \times 40 = 1360 \text{ cms}^2$

total $= 1869 \text{ cms}^2$

Weight 150 gms

$1869 \text{ cms}^2 : 1\text{M}000 \text{ cms}^2 :: 150 \text{ gms} : x$

$x = \frac{150 \times 1\text{M}000}{1869}$

1869) 150 6000 (705 gms per m^2 (a

17 × 80 = 1360
22 × 17 = 374
1734

52 × 64
128
128
3328
3328 Δ
1047.

$\frac{26}{13} \quad \frac{22}{7} \times 26 \times 13$
78
338
338
1017
1017.

4375 cm^2

1907 Aug. 22 Thursday : Rt. house

a 377) 5 250 000 1200 gms per m²
4 2 7 5
8 7 5 0
3 3 0

1907 Aug 23 Friday at Rost. House

weight of "The Selfridge"

weighed with Balance scales & gram weights

13330 grams

3260 ✓
3475 ✓
2910 ✓
3220 ✓
200 ✓
100 ✓
100 ✓
50 ✓
10 ✓
5 ✓
13330 ✓

W.F.B.

~~No. of cells in the Selfridge 320, Surface 10 m² horizontal.~~ (394 cells not 320)

~~Weight provided with five floats 13,330 gms.~~

~~Flying weight, counting floats as dead-load 1333 gms per m² horizontal.~~

~~Floats — Count in floats — Surface of floats~~

Floats			
1C	477	3 fl. 1500 cm	7500 cm²
1E	429		
1F	517		
4G	213	2 fl. 1000 cm	2520 cm²
4H	322		
Floats	1958 gms	Total	10020 cm²

~~Surface~~

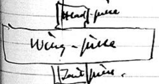
Horizontal surface of 320 cells 10,0000 cm²
" " of 5 floats 1,0020 cm²
11.0020 m² Say 11 m²

11) 13330
1212

Weight 13,330 gms

Surface 11 m²

Ratio 1212 gms per m² horizontal (about).



Cells

Head-piece	40 cells
Wing-piece	296 cells
Tail-piece	58 cells
	394

4	20	80
4	19	76
4	18	72
4	17	68
		296

Tail

3	6	18	
3	5	15	
3	4	12	
3	3	9	54
2	2	4	4
			58

394 cells at 32 cells per m^2 = 12.312 m^2 say 12 m^2

Surface of 5 floats say 1 m^2

Total horizontal or supporting Surface say 13 m^2

32)394(12.312
32
74
64
100
96
40
32
.8

13)13.330(1025
13
33
26
70
65
.5

The Selfridge Kite

Weight 13,330 gms

Surface 13 m^2

Ratio 1025 gms per m^2 horizontal

At the time of the second lift Farland McFarlane estimated that each float contained about a gal. of water... which caused the kite to take up about 80 lbs dead load. He thinks that the tail float was broken by the weight of its contained water resting on the stern as kite came out of the water.

The water was removed from one float.* upon coming back to the base house; and weighed.

Weight of float + water = 3218 gms.

Weight of float = 1737 gms.

∴ weight of water = 1481 gms

* Starboard head float.

2910
200
100
5
2
1

3218

1000
500
200
200
10
5

1737

2000
100
50
5
2
2157

Water was removed from Port head float. In weighing some water was lost however what was left was weighed.

Weight of water + pot = 2157 gms
pot, 1737
∴ Weight of water = 420 gms

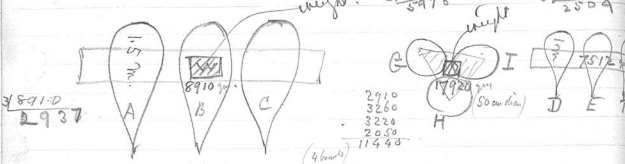
Examination of Starboard side float shows that it contained no water. Also no water in the Port side float. No water in stern float. (This is the float which was broken)

1907 Any use Sat at Royal Horse

Weight of the Selfridge this date
15775 grams

2810
3268
3475
3228
2000
200
100
80
15775

1907 Aug 27 — Sunday — at Head House



3|8911-D 2937

On Monday evening Aug 26th at five o'clock the above floats were placed in the water loaded as shown above.

The weights do not include the weights of the floats themselves.

Today at 2 P.M. all the floats seem to be floating high out of the water after having been in the water 21 hours. We will now examine them to see how much water has leaked in during that time and we will designate the floats by the letter A, B, C, etc. as shown above.

117×15×2.2 =
119×15×2.2 =
56.5×15×2.2
56×15×2.2
350.5×15×2.2

350.5
15
1752.5
350.5
55 2.5 8.5.5
10.5 1 8.0
10.5 1 8.0
2 1 1 8 6 8.8.0
5 7 8 3 1 2 5

Float	Load	Weight of water in float
A.	2937	0
B	2937	0
C	2937	0
D	2504	0
E	2504	0
F	2504	0
G	5973	0
H	5973	0
I	5973	242

Practically no water in any of the floats excepting I (marked S 430) water in which weighs 242 gms

Leakage in these floats seems to take place chiefly at the top where the tabs or loops are for attaching the floats to the kite and perhaps at the seams. A hole in the bottom would not admit water to any extent if the rest of the float was air tight. In fact if we could be sure that the floats would always remain bottom down a great advantage might arise by cutting away a large

portion of the bottom or making large holes in the bottom as this would secure perfect drainage of the float when in the air. worth while considering making floats on the principle of a diving bell

McC. Bompas suggests that the risers would be less likely to do damage if on the bottom of the float instead of on the top

A/3/13. Diving bell floats worthy of consideration.

In floats made last year the idea was developed to the extent of having a permanent opening in the tail air open tube - so that if tail was immersed water would not penetrate into the float any more than water would enter a submerged bottle with the neck down — that is on the assumption that the rest of the float is air tight and what little water would find entrance would escape again through the stern tube. This was the origin of the tube in the tail of the present snowshoe floats. But really what is wanted is a free incision in the bottom of the float or a protruding open tube in the very bottom.

1907 Sept 11 Wednesday Boat House

3220
2910
3260
2000
1000
200
100
10
12700

Weight of "the Selfridge"
this date without floats 12700 gm

$$\frac{125 \times 52}{2} + \frac{3.14 \times 26^2}{2}$$

1260
1260
2500
2500
2500
10020 cm²

125
52
250
625
6500
2) 3250

26
26

Surface of Kite say 12 m²
Surface of floats say 1 m²
say 13 m²

Weight 15740
Surface 13 m²
Ratio 1211 gm per m² horizontal.

10600
3220
1000
500
200
100
100
10
10
15740 gms

~~13) 15740 (12~~
~~13~~
~~27~~
~~34~~
~~14~~

13) 15740 (1210.(7)
13
27
26
140
13
100

4 8/4 ok
1

Kite to be flown 

10
454) 15740 (34.6⁶
1362
2120
1816
3040
2724
316

4 8/4
1
ok

13
10 3/4
439
9.75
130
139.75 sq ft.

Weight 34.7 lbs
Surface 140 sq. ft.
Ratio 0.25 lbs per sq ft.

140) 34.7 (0.24⁶
280
670
560
110

5 5/6
2
ok

1907 Sept 16 monday Road House

Floats 1C 1B & 1 were placed in water with a weight of about 16000 grams of lead distributed over the three floats left there for about 200 hours on examination this morning I find:-

Float 1C heavy water in it.
" 1B " 12385 gms water in it.
" 1 has no water in it.

WJHS.

1907 Sept 24 Tuesday at Road House

$9 \times 3.14 \times .3^2/4$

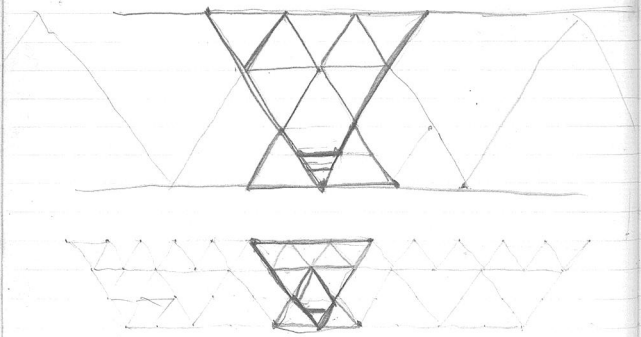
1907 Oct 2 Thursday at 7.54

15° 1 1/2 meters. at start of Exps.

Twin Propellers Experiment.

Exp.	Rev. per min.	Pull.	Remarks.
1	900	80	Full size
2	994	80	Trimmed down on edges
3	1060	80	Trimmed down on edges
4	1088	80	5cm cut off blends.

1907 Oct 10 Thursday . at. B.A



13 tip
18 rear
9 bottom
15
8
54 m. 70° 20 m. 55°

13
5
25
24
17 m.
40
135 m.

1907 Oct. 12 Saturday at BH

Wt. of Beading.

Ridge Beading

121·04 gms per m.

Hooks about 4 gms.

Corner Beading

99·01 gms. per m
6·00 " Hooks
105·01 " per m. complete

face Beading

75 gms per m. including Hooks

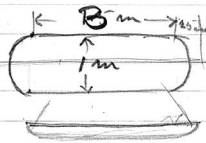
54 m 70° ∠ @ 125 gms per m.

125
500
625
6750 gms.

20 m. 55° ∠ @ 105 gms per m.
= 1100 gms.

135 m. double @ 50 gms.
= 6750 gms.

1100
6750
14,600 gms.

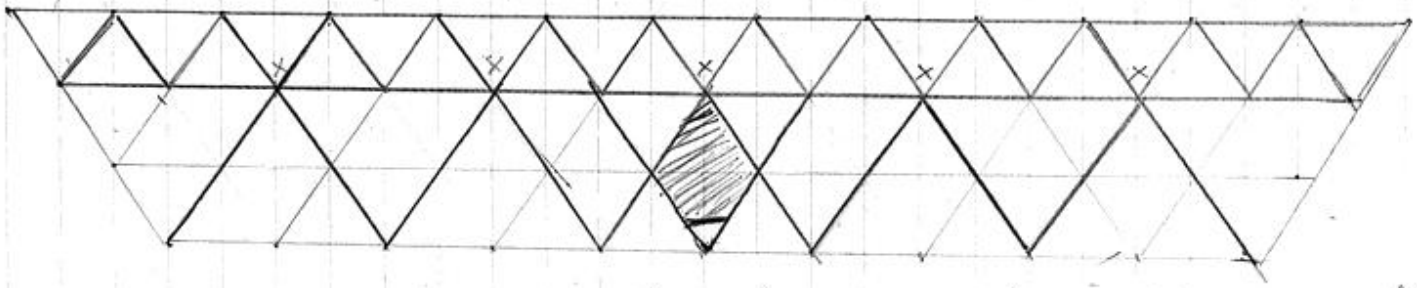


160
160
160
480

500 lbs. dead load
500 " live load
1000 lbs.
250 each

If the centre of surface of the kite structure is behind the centre of flotation of the float the kite structure should theoretically act as a spanker sail & keep the float heading into the wind

dictated G.S.B.



heavy lines - double beading - at junctions marked x run inside piece of double beading right through -

1907 Oct. 24 Thursday Annex

Weight of silk to cover bottom of large floats 242 gms
Ido. Ido. to cover tops of floats 204 "
Total 446 gms

1907 Oct. 25 Friday Annex

data re. Floats 4 floats

Construction
- labor 7 days 2 men
- 30 Coils wire at 5 c
- 55 ft. Beading at 3 c
- 650 ft. slats at 1½ c

} 4 float-frames

covering 1 float
- 22½ yds silk at 58 c yd $12.85
- Sewing silk together 3 hrs at 6 c .18
- Putting silk on floats

π 24 · ¼
25 · 1
1 · 1

4 floats
- Treating Silk
- 1 man 7 days

1907 Friday 6a-25 annex

Started work on ugly shedding Oct 18th

Oct 18th - 2 men

19 - 2 "

21 - 0 "

22 - 0 "

23 - 2 " Sund

24 - 3 "

25 - 3 "

26 - 3

27

28

29

30

1

2

4

5

6

7

8

9

28 - 3

29 - 3

30 - 4

31 - 4

1 - 4

2 - 4

4 - 4

5 - 4

6 - 4

7 - 4

8 - 4

9

Scow

4 men 5 days

1907 Nov 8 Friday M.M. Lab

Silk float for holder #1
put in water with a load of
1 1/2 lb. for 24 hours.

Result:- Silk bagged in between frames, but absorbed no water in float.

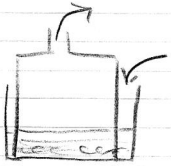


Fig. 1 in C.

a, b.